## **Claims**

We claim:

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- 1. A method for providing a vertebrate animal with a therapeutically/effective amount of a protein, said method comprising introducing into cells of said animal an effective amount of a recombinant entomopox virus vector, wherein said vector comprises a polynucleotide encoding said protein.
  - 2. The method according to claim 1, wherein said animal is a mammal.
  - 3. The method according to claim 2, wherein said mammal is a human.
- 4. The method according to claim 1, wherein said vector comprises inverted terminal repeat sequences flanking said polynucleotide encoding said protein.
- 5. The method according to claim 4, wherein said inverted terminal repeat sequences are derived from adeno-associated virus.
- 6. The method according to claim 1, wherein said vector comprises a promoter sequence capable of driving expression of said polynucleotide encoding said protein.
- 7. The method according to claim 6, wherein said promoter sequence is selected from the group consisting of a CMV promoter sequence and herpes TK promoter sequence.
- 8. The method according claim 1, wherein said protein encoded by said polynucleotide is selected from the group consisting of interleukins, cytokines, growth factors, interferons, enzymes and structural proteins.

1	9. The method according to claim 1, wherein said vector is introduced into
2	said cells of said animal by infection in a viral particle.
1	10. The method according to claim 1, wherein said vector is introduced into
2	said cells of said animal by means selected from the group consisting of transfection,
3	transduction and injection.
1	11. The method according to claim 1, wherein said vector is introduced into
2	said cells of said animal in vitro and said treated cells are introduced into said animal.
1	12. The method according to claim 1, wherein said vector is introduced into
2	said cells of said animal in vivo.
1	13. The method according to claim 1, wherein said polynucleotide encoding
2	said protein is greater than about 10 kb in size.
1	14. The method according to claim 1, wherein said polynucleotide also
2	encodes a selectable marker protein.
1	15. A recombinant entomopox virus vector comprising a polynucleotide
2	encoding a protein capable of providing a therapeutic effect to an animal when
3	expressed in said animal.
1	16. The recombinant vector according to claim 15, wherein said animal is a
2	mammal.
1	17. The vector according to claim 16, wherein said mammal is a human.

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1	18. The vector according to claim 15, wherein said entomopox virus is/
2	Amsacta moorei.
1	19. The vector according to claim 15, wherein said vector comprises inverted
2	terminal repeat sequences flanking said polynucleotide encoding said protein.
1	20. The vector according to claim 19, wherein said inverted terminal repeat
2	sequences are derived from adeno-associated virus.
1	21. The vector according to claim 15, wherein said vector comprises a
2	promoter sequence capable of driving expression of said polynucleotide encoding
3	said protein.
1	22. The vector according to claim 21, wherein said promoter sequences are
2	selected from the group consisting of MV and herpes TK.
1	23. The vector according to claim 15, wherein said protein encoded by said
2	polynucleotide is selected from the group consisting of interleukins, cytokines,
3	growth factors, interferons, enzymes and structural proteins.
1	24. The vector according to claim 15, wherein said polynucleotide encoding
2	said protein is greater than about 10 kb in size.
1	25. The vector according to claim 15, wherein said polynucleotide also
2	encodes a selectable marker protein.
1	26. A composition of matter comprising a recombinant entomopox vector,
2	wherein said vector comprises a polynucleotide encoding a protein capable of
3	providing a therapeutic effect to an animal when expressed in said animal and

4	wherein said composition of matter is selected from the group consisting of viral
5	particles and cells.
1	27. The cell according to claim 26, wherein said cell expresses a protein
2	encoded by said polynucleotide.
1	28. An isolated polynucledtide encoding an Amsacta moorei entomopox
2	virus protein selected from the group consisting of triacylglyceridelipase, Cu <sup>++</sup> /Zn <sup>+-</sup>
3	superoxide dismutase, CPD photolyase, baculovirus-like inhibitor of apoptosis, first
4	poly(A) polymerase small subunit, second poly(A) polymerase small subunit, first
5	DNA polymerase, second DNA polymerase, ABC transporter-like protein, Kunitz-
6	motif protease inhibitor and poly(A) polymerase large subunit.
2 Sub	29. The polynucleotide according to claim 28, wherein said triacylglyceride lipase comprises SEQ ID NO: 12 or a fragment or variant thereof.
1	30. The polynucleotide according to claim 28, wherein said polynucleotide
2	comprises SEQ ID NO: 1 or a fragment or variant thereof.
1	31. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 1 or its complement.
34 <u>6</u>	32. The polynucleotide according to claim 28, wherein said CuttZn
2	superoxide dismutase comprises SEQ ID NO: 13 or a fragment or variant thereof.
1	33. The polynucleotide according to claim 28, wherein said polynucleotide
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2 /	comprises SEQ ID NO: 2 or a fragment or variant thereof.

1	34. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 2 or its complement.
1	35. The polynucleotide according to claim 28, wherein said CPD photolyase
2	comprises SEQ ID NO: 14 or a fragment or variant thereof.
1	36. The polynucleotide according to claim 28, wherein said polynucleotide
2	comprises SEQ ID NO: 3 or a fragment or variant thereof.
ļ	37. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 3 or its complement.
1	516 2 38. The polynucleotide according to claim 28, wherein said baculovirus-like
2	inhibitor of apoptosis comprises SEQ ID NO: 15 or a fragment or variant thereof.
i I	39. The polynucleotide according to claim 28, wherein said polynucleotide
2	comprises SEQ ID NO: 4 or a fragment or variant thereof.
1	40. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 4 or its complement.
Ę	41. The polynucleotide according to claim 28, wherein said first poly(A)
2	polymerase small subunit comprises SEQ ID NO: 16 or a fragment or variant thereof.
1	42. The polymicleotide according to claim 28, wherein said polymucleotide
2	comprises SEQ ID NO: 5 or a fragment or variant thereof.
1	43. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 5 or its complement.
_	nyonaizes with the sequence as set to the in SEQ 1D NO. 5 of its complement.

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Sup	44. The polynucleotide according to claim 28, wherein said second poly(A)
2	polymerase small subunit comprises SEQ ID NO: 17 or a fragment or variant thereof.
1	45. The polynucleotide according to claim 28, wherein said polynucleotide
2	comprises SEQ ID NO: 6 or a fragment or variant thereof.
1	46. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 6 or its complement.
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1	47. The polynucleotide according to claim 28, wherein said first DNA
2	polymerase comprises SEQ ID NO: 18 or a fragment or variant thereof.
1	48. The polynucleotide according to claim 28, wherein said polynucleotide
2	comprises SEQ ID NO: 7 or a fragment or variant thereof.
1	49. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEQ ID NO: 7 or its complement.
546	50. The polynucleotide according to claim 28, wherein said second DNA
2	50. The polyhudocondo decording to claim 20, wherein said seed 27.
<u> 2</u>	polymerase comprises SEQ ID NO: 19 or a fragment or variant thereof.
1	51. The polynucleotide according to claim 28, wherein said polynucleotide
2	comprises SEQ ID NO: 8 or a fragment or variant thereof.
~	complaces of the 110. o of a fragment of variant increof.
1	52. The polynucleotide according to claim 28, wherein said polynucleotide
2	hybridizes with the sequence as set forth in SEO ID NO: 8 or its complement.

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91	$\frac{75}{53}$ . The polynucl	leotideaccording to claim 28, wherei	n said ABC transporter-
2	like protein comprises S	EQ ID NO: 20 or a fragment or var	iant thereof.
1	54. The polynuc	eleotide according to claim 28, where	ein said polynucleotide
2	comprises SEQ ID NO:	9 or a fragment or variant thereof.	
1	55. The polynuc	leotide according to claim 28, where	ein said polynucleotide
2	hybridizes with the sequ	ence as set forth in SEQ ID NO: 9 o	or its complement.
iSi	56. The polynuc	cleotide according to claim 28, who	erein said Kunitz-motif
2	protease inhibitor compr	rises SEQ ID NO: 21 or a fragment	or variant thereof.
1	57. The polynuc	cleotide according to claim 28, where	ein said polynucleotide
2	comprises SEQ ID NO:	10 or a fragment or variant thereof.	
1	58. The polynuc	leotide according to claim 28, where	ein said polynucleotide
2	hybridizes with the sequ	ence as set forth in SEQ ID NO: 10	or its complement.
şu	ball 59. The polynomial of the	ucleotide according to claim 28,	wherein said poly(A)
2	polymerase large subunit	comprises SEQ ID NO: 22 or a frag	ment or variant thereof.
1	60. The polynuc	cleotide according to claim 28, where	ein said polynucleotide
2	comprises SEQ ID NO:	11 or a fragment or variant thereof.	
1	61. The polynucl	leotide according to claim 28, where	ein said polynucleotide
2	hybridizes with the sequ	ence as set forth in SEQ ID NO: 11	or its complement.
1	62 An isolated 4	Amsacta moorei entomopox virus pr	otein selected from the
2		cylglyceride lypase, Cu <sup>-</sup> /Zn <sup>-</sup> super	

3	photolyase, baculovirus-like inhibitor of apoptosis, first poly(A) polymerase small
4	subunit, second poly(A) polymerase small subunit, first DNA polymerase, second
5	DNA polymerase, ABC transporter-like protein, Kunitz-motif protease inhibitor and
6	poly(A) polymerase large subunit.
subc	63. The triacylglyceride lipase of claim 62 comprising the amino acid
2	sequence as set forth in SEQ ID NO: 12, or a fragment or variant thereof.
1	64. The Cu <sup></sup> /Zn <sup></sup> superoxide disumutase of claim 62 comprising the amino
2	acid sequence as set forth in SEQ ID NO: 13, or a fragment or variant thereof.
1	65. The CPD photolyase of claim 62 comprising the amino acid sequence as
2	set forth in SEQ ID NO: 14, or a fragment or variant thereof.
1	66. The baculovirus-like inhibitor of apoptosis of claim 62 comprising the
2	amino acid sequence as set forth in SEQ ID NO: 15, or a fragment or variant thereof.
1	67. The first poly(A) polymerase small subunit of claim 62 comprising the
2	amino acid sequence as set forth in SEQ ID NO: 16, or a fragment or variant thereof.
1	68. The second poly(A) polymerase small subunit of claim 62 comprising the
2	amino acid sequence as set forth in SEQ ID NO: 17, or a fragment or variant thereof.
1	69. The first DNA polymerase of claim 62 comprising the amino acid
2	sequence as set forth in SEQ ID NO: 18, or a fragment or variant thereof.
1	70. The second DNA polymerase of claim 62 comprising the amino acid
2	sequence as set forth in SEQ ID NO: 19, or a fragment or variant thereof.
_	bequence as set form in SEQ 15 110. 17, or a magment of randim mercol.

1	71. The ABC transporter-like protein of claim 62 comprising the amino acid
2	sequence as set forth in SEQ ID NO: 20, or a fragment or variant thereof.
1	72. The Kunitz-motif protease inhibitor of claim 62 comprising the amino
2	acid sequence as set forth in SEQ ID NO: 21, or a fragment or variant thereof.
1	73. The poly(A) polymerase large subunit of claim 62 comprising the amino
2	acid sequence as set forth in SEQ ID NO: 22, or a fragment or variant thereof.
1	74. An isolated polynucleotide encoding an Amsacta moorei entomopox
2	virus polypeptide, wherein said polynucleotide is selected from the group consisting
3	of AMVITR10, AMV002, AMV047, AMV051, AMV054, AMV059, AMV061,
4	AMV066, AMV078, AMV079, AMV081, AMV084, AMV087, AMV91, AMV093,
5	AMV105, AMV114, AMV122, AMV135, AMV139, AMV147, AMV150,
6	AMV153, AMV166, AMV167, AMV174, AMV181, AMV192, AMV193,
7	AMV197, AMV199, AMV205, AMV221, AMV228, AMV230, AMV231,
8	AMV234, AMV246. AMV248 and AMV256, or a fragment or variant thereof.
1	75. An isolated <i>Amsacta moorei</i> entomopox virus polypeptide encoded by
2	a polynucleotide selected from the group consisting of AMVITR10, AMV002,
3	AMV047, AMV051, AMV054, AMV059, AMV061, AMV066, AMV078,
4	AMV079, AMV081, AMV084, AMV087, AMV91, AMV093, AMV105, AMV114,
5	AMV122, AMV135, AMV139, AMV147, AMV150, AMV153, AMV166,
6	AMV167, AMV174, AMV181, AMV192, AMV193, AMV197, AMV199,
7	AMV205, AMV221, AMV228, AMV230, AMV231, AMV234, AMV246, AMV248

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and AMV256, or a fragment or variant thereof.